RATIONALE FOR NIOSH GENERAL JOB STRESS QUESTIONNAIRE

The dominant methodology in occupational stress research has been a questionnaire survey approach (generally cross-sectional) involving workers' self reports of job characteristics and health complaints, the former achieving "stressor" status if correlated with the latter (Murphy and Hurrell, 1987). While this approach is quick and economical (especially in the study of large population groups) and has generated some important findings, it is quite obvious that problems abound. As Jenkins, DeFrank, and Speers, (1984) have noted in their review and evaluation of psychometric methodologies for stress assessment, no single job stress measurement questionnaire currently used has such extensive psychometric support, and is so free from methodological difficulties, that it can be recommended without reservation. A recurring practice has been to use abbreviated and unstandardized scales for measures of variables. Often, these scales are borrowed from earlier studies, but then reduced in size without analysis of the old or new data to determine the effects such abbreviations have on the psychometric properties of the scales. Scales averaging 3 items in length are common in the literature. Investigators who use such short scales often do not cite reliability figures, if they are cited, they are usually internal consistency estimates based upon an approach such as the Spearman-Brown Prophecy Formula, which makes a projection about what the reliability of the scale would be if it were many times longer. Such scales can also be expected to generally have low validity.

Another major problem is that scales are seldom re-used in the exact form that they were first developed (Murphy and Hurrell, 1987); Jenkins et al, 1984). This along with the use of scales with unknown validity and reliability leads to a problem of unknown degrees of non-comparability and retards the formation of a much needed normative data base against which to compare stress levels in specific occupational groups.

Some questionnaire survey studies of job stress have failed to adequately distinguish between measures of stressors and measures of resulting strain (Kasl, 1978). Others make this distinction but fail to show separately the relationships between stressors, strain, and physical and mental health outcomes. Very few questionnaire studies consider intervening or modifying variables. Even fewer consider sources of stress outside the work environment which may serve to exacerbate or in other ways interact with work related problems (Murphy and Hurrell 1987).

The problems summarized above point to a need for a valid and reliable generic questionnaire instrument (or at least a core set of scales) which could be applied across occupational situations. Tailor-made or selectively modified scales could be added to this generic instrument as the need arises to capture the idiosyncratic factors which make any particular occupation difficult. Such a generic instrument would allow for the accumulation of a psychometric data base which would permit comparisons across occupations. Indeed, there is increasing pressure for such an instrument owing in part to the mounting numbers of stress-related Worker Compensation lawsuits and the

concurrent and growing necessity for organizations to document the effectiveness of stress reduction and stressor abatement interventions (Ivancevich, Matteson and Richards, 1985).

Development of such an instrument requires a content analysis of existing job stress literature to identify constructs and measures which cut across occupations. Therefore, independent content analyses and recommendations concerning candidate scale inclusion were solicited form two nationally recognized experts.

Using these analyses and recommendations and in-house expertise in this area, a generic instrument was developed by NIOSH. A schematic view of the theoretical approach to job stress which guided the final selection of specific constructs included in the questionnaire is presented in Figure 1. This model, developed by NIOSH, builds upon frameworks proposed by Caplan, Cobb, French, Harrison, and Pinneau (1975), Cooper and Marshall (1976), and House (1974). In this scheme, Job Stressors refer to working conditions that may lead to Acute Reactions, or strains in the worker. These short-term strains, in turn, are presumed to have an impact on longer-term indicators of mental and physical health. Three other components are included in the model: Individual Factors, Nonwork Factors, and Buffer Factors. These categories encompass a variety of personal and situational factors that seem to lead to differences in the way individuals exposed to the same job stressors perceive and\or react to the situation.

Following the selection of constructs for inclusion in the questionnaire, empirical measures were chosen. The choice of particular scales (measures) was guided by the following criteria:

1. Preference should be given to multi-item scales for which evidence exists regarding acceptable reliability and validity.

2. Items or scales should be used which do not explicitly confound the description of stressors and their consequences.

3. Given lack of confounding and acceptable psychometric properties, scales should be chosen which have been used most extensively in prior research, thereby providing norms for comparison.

4. Given that no sound measures of an important construct exit, multi-item scales should be constructed.

Table 1 provides a list of the constructs and the measures ultimately included in the questionnaire while Table 2 summarizes the bases on which the measures were chosen.

Table 1

Constructs and Measures Included in NIOSH General Job Stress Questionnaire

Construct	Source of Measure	Number of Items
	Job Stressors	
Physical Environment	New Items	10
Role Conflict	Rizzo et al. (1970)	8
Role Ambiguity	Rizzo et al. (1970)	6
Interpersonal Conflict	Rahim (1983)	16
Job Future Ambiguity	Caplan et al. (1975)	4
Job Control	Greenberger (1981) & Ganster (1984)	16
Percieved Employment Opportunities	Ganster (1984)	4
Quantitative Workload	Caplan et al. (1975)	11
Variance in Workload	Caplan et al. (1975)	3
Responsibility for People	Caplan et al. (1975)	4
Utilization of Abilities	Caplan et al.. (1975)	3
Cognitive Demands	Hurrell et al. (1985)	5
Shiftwork	New Items	4
	Non-Work Factors	
Non-Work Activities	New Items	7
	Individual Factors	
Age		1
Gender		1

Table 1 (cont.)

Marital Status		1
Number and Ages of Children		4
Job Tenure		1
Job Title		1
Type A Personality	Thurstone (1953)	20
Self-Esteem	Rosenberg (1965)	10
	Buffer Factors	
Social Support	Caplan et al. (1975)	12
	Acute Reactions (psychological)	
Job Satisfaction	Caplan et al. (1975)	4
Affective Reaction	NIMH CES-Depression Scale	20
	Acute Reactions (physiological)	
Domatic Complaints	Ganster (1984)	17
	Acute Reactions (behavioral)	
Accidents	New Item	1
Tobacco Use	New Item	1
Recent Sick Leave	New Item	1
	Illnesses	
Health Conditions	Cornell Medical Index	24
Work Disability	New Items	5

Table 2

Criteria for Measure Selection

Measure	Criteria: Acceptable Psychometric Properties	Criteria: Absence of Stressor/Strain Confounding	Criteria: Extensive Use/ Norms Avaiable
Role Conflict	yes	yes	yes
Role Ambiguity	yes	yes	yes
Group Conflict	yes	yes	yes
Job Future Ambiguity	yes	yes	yes
Job Control	yes	yes	no
Employment Oportunities	yes	yes	no
Quantitative Workload	yes	yes	yes
Variance in Workload	yes	yes	yes
Responsibility for People	yes	yes	yes
Utilization of Abilities	yes	yes	yes
Cognitive Demands	yes	yes	no
Type A	yes	yes	yes
Self-Esteem	yes	NA	yes
Social Support	yes	NA	yes
Job Satisfaction	yes	NA	yes
Affective Reactions	yes	NA	yes
Somatic Complaints	yes	NA	yes
Health Conditions	yes	NA	yes

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Figure 1

MODEL OF JOB STRESS AND HEALTH